

Corps of Engineers  
Response to Review Panel Comments

**1. Panel Comment.** Although apparently reasonable at the time, the absence of a multi-port analysis is no longer reasonable in light of recent information.

**Corps Response.** In our response, we would like to argue that a multi-port analysis would inevitably result in higher project benefits as compared to the current method of analysis. We would further like to acknowledge the panel's desire for more descriptive information about the regional container market and container vessel operations.

There are two primary components of a multi-port analysis: cargo volumes and transportation costs. With regard to cargo volumes, we would note that the Panel considers the existing container projection to be conservative and has suggested that the project could result in higher container volumes than what is forecast. The existing forecast could then be viewed as an acceptable, though conservative with-project forecast in a multi-port analysis. Presumably, a without-project forecast would assume that some of the cargo moving through the Columbia River would shift to another port area.

Present Portland export cargo originates from the capture area wherein inland transportation costs are lower to Portland as compared to the Puget Sound ports by an estimated \$14.75 per ton (weighted average).<sup>1</sup> Nearly 60 percent of the export cargo presently shipped from the Columbia River originates in the Portland metropolitan area and the Willamette Valley to the immediate south of Portland. Another 22 percent comes from the inland area served by the barge system on the Lower Snake and Mid-Columbia River region (Lewiston WA, Pasco WA, Boardman OR, and Umatilla OR). The last major origin of Portland cargo is the Longview area, about 45 miles north of Portland, which originates approximately 7 percent of the export cargo. The remaining 7 percent of the cargo originates from other outlying areas in Southern Oregon, the Oregon coast, Idaho, and Eastern Washington.

The average cost to transport a container from within this capture area to/from Portland is \$293 per container.<sup>2</sup> From this same capture area to/from the Puget Sound, the average cost is \$637 per container. The net difference is \$344 per container, or an estimated \$14.75 per short ton. Table 1 displays a comparison of the transportation rates from key regions to Portland and the Puget Sound ports. The geographic regions presented in the table are the current origins of containerized export cargo being shipped through the Port of Portland, exclusive of intermodal traffic.

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<sup>1</sup> The Port of Portland and Gene Leverton & Associates.

<sup>2</sup> Inland transportation costs are weighted by container size and chassis type (regular and super).

**Table 1. Container Shipping Costs Comparison, All-Inclusive Rates**

Region	Share	Weighted <sup>3</sup> Cost/Ctnr		Cost/S. Ton		Difference in Cost Puget S. vs. Portland	
		Portland	P. Sound	Portland	P. Sound	Weighted Container	Short Ton
Lewiston	6.7%	\$450	\$841	\$19.82	\$36.99	\$390	\$17.17
Longview	12.9%	\$172	\$284	\$6.95	\$11.49	\$112	\$4.54
Mid Columbia <sup>4</sup>	15.5%	\$425	\$728	\$17.56	\$30.03	\$302	\$12.47
Portland	18.4%	\$156	\$476	\$7.02	\$21.49	\$321	\$14.48
Willamette Valley	39.9%	\$231	\$680	\$9.50	\$27.90	\$448	\$18.40
Other	6.5%	\$699	\$993	\$38.95	\$55.36	\$294	\$16.41
<b>Total</b>	<b>100.0%</b>	<b>\$293</b>	<b>\$637</b>	<b>\$12.57</b>	<b>\$27.32</b>	<b>\$344</b>	<b>\$14.75</b>

Source: Port of Portland

The \$14.75 difference in inland transportation costs exceeds projected total vessel operating costs (e.g., \$13.48 in 2007 for the Columbia River without-project condition) as estimated by the Corps analysis. The difference in inland costs to and from the two port areas is so great that it far exceeds any reasonable estimate of vessel operating cost differences between the two port areas.

It is clear that, if a multi-port analysis showed any difference in volumes between the with-project and the without-project conditions, the benefits of the project could only increase relative to the current analysis.

***Additional Panel Comments related to Multi-Port Analysis.***

The scope of a broader analysis would encompass the complexity of the container shipping market and container vessel operations, and the role of Portland as a last-call, riverine port with niche export cargo. A broader scope would also consider additional issues, including but not limited to:

- alternative interpretations of current and historical cargo flows and routing decisions in determining percentages of cargo captured from the Portland hinterland with and without the project;
- the perspectives of hinterland shippers and consignees on assumptions and forecasts;
- the views of shipping lines that do *not* presently call Portland on vessel operations and fleet composition scenarios;
- the perspectives of competing ports and the impact and extent of their expansion or improvement plans;
- the history of vessel delays and their underlying causes;
- past and projected ratios of empty and loaded outbound containers;
- the full logistics costs for container vessels, including potential in-port vessel size diseconomies, instead of relying solely on sailing and in-port transportation costs; and

<sup>3</sup> Rates will vary by container size and chassis type. These costs are weighted accordingly.

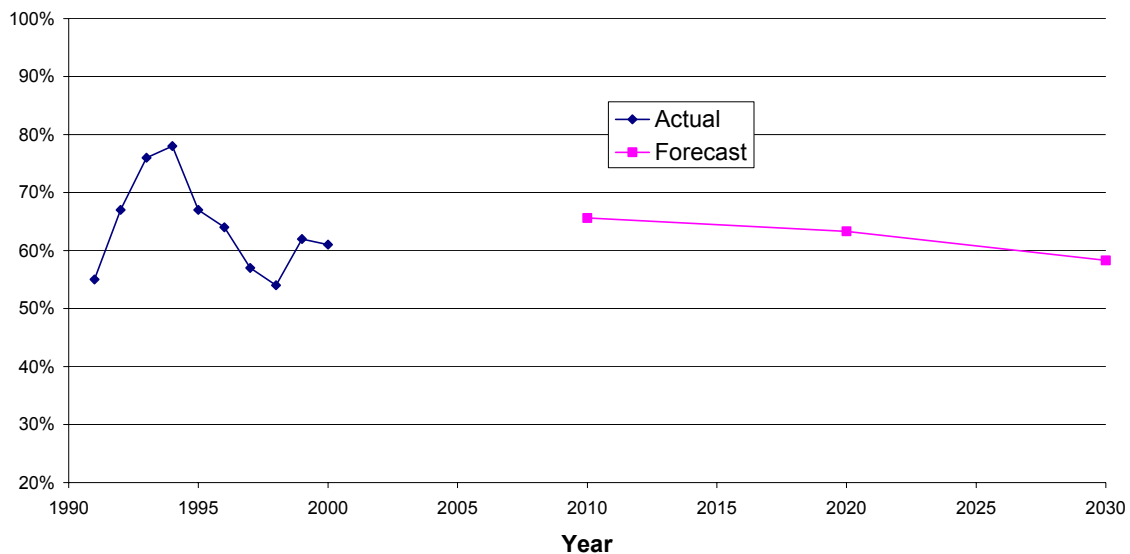
<sup>4</sup> Mid-Columbia represents Pasco, Boardman, Umatilla.

- a trade flow/multi-port analysis for bulk commodities, which would include cargo handling and storage capacities, which may reveal additional benefits.

### Corps Response.

**Portland Capture Rate.** Figure 1 displays the historical and forecasted Port of Portland capture rate for the Portland hinterland. At the beginning of the period of analysis, the capture rate is approximately identical to the ten-year average. Over time, the capture rate is expected to decline, dropping to 58 percent by 2030.

**Figure 1. Portland Hinterland Capture Rates (1991-2000 and Projected)**



There is some uncertainty in the projection of future Portland capture rates. The capture rate has fluctuated over time, and it is reasonable to consider the possibility that the capture rate could differ between the with-project and without-project conditions. Assigning values that differed from historic levels would be problematic, however. This analysis has assumed that the Portland capture rate will remain at approximately the 10-year average, declining from 65.6 percent to 58.3 percent over the period of analysis. This represents a substantially more conservative approach than was taken in the 1999 FEIS, in which it was assumed that the Portland market share stayed constant at the historical average over the period of analysis. The Corps will be providing a sensitivity analysis on the assumed capture rate in the final report.

**Perspectives of shippers.** The Corps assumption is that the project will not significantly alter shipper behavior. The analysis does not assume that, if the channel is deepened, shippers will be more predisposed to use Columbia River ports. In fact, the analysis assumes that Portland's market share of the export hinterland will decline. While the individual circumstances for each shipper will vary dramatically, there are a few general

critical elements of port choice. The following are some of the factors that will continue to shape shipper choices.

- **Service to Destination.** There will always be cargo being shipped out of the Portland hinterland that is bound for destinations that are not served by Portland vessels but are served by Puget Sound carriers. The number of transpacific services calling at Portland has ranged from two to four over the last several years, far fewer than the 17 to 19 weekly services that typically call at Puget Sound ports.
- **Capacity.** Some shippers are unable to ship their product through Portland due to capacity constraints. Portland will always tend to be an under-tonnaged market, meaning there will almost always be less capacity than demand. When a carrier makes a decision to call Portland, the stop in Portland not only needs to make sense in terms of having cargo revenue to cover the additional time to make the stop, but the call is also compared to the benefits of making a call at another foreign port. Given a fixed number of vessels in a particular rotation for any service, a call in Portland needs to be competitive with a call in China, South Korea, etc. This results in a high level of vessel utilization for carriers that choose to call Portland.

While approximately 40 percent of the cargo in the Portland hinterland is shipped via the Puget Sound, the extent to which Portland is under-tonnaged is unknown. Rate and service factors dictate that there is some portion of the hinterland that is being served by the Puget Sound for reasons other than capacity constraints, but the amount of that leakage that could be recovered with additional capacity in Portland is uncertain.

- **Rate.** For much of the agricultural and forestry products exports, the lowest total rate (inland+ocean) will dictate the route of choice. It is expected that carriers in the Puget Sound will continue to be rate-competitive with Portland carriers. The degree to which Puget Sound carriers choose to compete on rates varies from week to week, but market forces dictate that Puget Sound ocean rates will almost always be lower than Portland ocean rates. The amount of capacity in the Puget Sound far exceeds the capacity in Portland, driving Puget Sound rates down. In comparison, LALB rates tend to be a little lower than Puget Sound rates, given the even greater amount of LALB export capacity relative to demand.

The Corps' analysis reflects an expectation that Puget Sound carriers will continue to draw substantial amounts of cargo out of the Portland hinterland, and that Portland's capture rate will decline slightly over the period of analysis.

- **Quality/Consistency of Service.** Within some limits, shippers will also base their decisions on carrier preferences based on other less tangible issues, such as quality of customer support, long-term reliability, or other factors.

In Portland, for example, Hyundai, Evergreen, Hanjin, and Mitsui OSK have each entered, exited, and then re-entered the market with direct service over the past ten years (at the present time, Evergreen does not have direct service in Portland). Terminal 6 is owned and operated by the Port of Portland as a common-user terminal. Marine Terminals Corporation (MTC) is the Port's contract stevedore at the terminal. Container carriers call Terminal 6 under terminal use/stevedoring agreements with the Port that have durations of one to five years. Compared to other West Coast ports, where major carriers have entered into long-term leases and have made significant capital investments, the exit barriers for carriers serving Portland are relatively low. As a common-user port, however, Portland can also be viewed as a market with low entry barriers.

**Perspectives of competing ports.** This analysis assumes that the Puget Sound ports will continue to seek ways to improve efficiencies and lower costs, but there are no likely scenarios in which an improvement would be pursued due to channel deepening on the Columbia River<sup>5</sup>. If there were a competitive response in the Puget Sound, it would likely occur within the realm of carrier rate competition, and would not constitute a real cost change.

**History of vessel delays.** It is clear from the Panel's comments that container vessel delay was of some concern. The average annual delay reduction benefit for container vessels is \$4,000. A table displaying the distribution of delay benefits by commodity could have assisted in resolving some of the comments that were raised. The final SEIS will display delay benefits by commodity. The Panel's comments indicate that \$4,000 is probably an understatement of the potential delay benefits associated with container vessels, but time constraints dictate that the Corps leaves those benefits uncounted.

Bulk vessels account for \$132,000 in average annual delay benefits, which is also small, but likely also excludes the occasional additional labor costs that some vessel operators will incur in order to avoid a lengthy or costly tidal delay.

**Past and Projected ratios of empties to loaded containers.** There are a number of factors that have contributed to the increase in empties loaded at Portland. Empty containers comprised 24 percent of Portland export containers in 2001. This has grown from only a few percent five years ago. The increase followed the 1998 Asian economic crisis, which worsened the imbalance of transpacific trade and created the need to transport increasing volumes of empty containers back to Asia. We expect this to be a long-term situation; that is, imports will continue to grow faster than exports, and that a significant imbalance in the trade will persist.

In addition to the imbalance, vessel size has also had an impact on the percent of empties loaded on vessels in Portland. As vessels get larger and deeper, the percentage tends to increase. This is because the vessel will reach the target outbound draft well before it "cubes" out. The vessel operator will need to cube out the ship, and therefore will need

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<sup>5</sup> Doug Ljungren, Business Planning Manager, Port of Tacoma.

to allocate slots and deadweight to the carriage of empties on each voyage. If the vessel is draft constrained, the percent of the vessel's cubic capacity that is empty, as measured in TEUs, will increase with the size and draft of the ship.

An additional factor contributing to the increase in empties loaded at Portland is the extension of vessel rotations calling Portland into new port areas, especially mainland China. These are destinations that carriers must position empty equipment into to capture the higher revenue eastbound headhaul cargo.

Container carriers come to Portland to load export cargo. There is a balancing act that occurs every week for every service, balancing the need to get empties back to Asia with the need to carry enough revenue generating cargo to justify the additional time and expense of a call to Portland. The result of this balancing act is a very consistent utilization of the available draft in the Columbia River navigation channel. With the additional capacity created by channel deepening, carriers are likely to continue the trend of maximizing export cargo within the new draft constraint of the river.

The Corps' analysis assumes that the additional three feet of capacity does not change the total ratio of empties to fulls on board each vessel. Analytically, there are a few other reasonable scenarios.

- **Empties increase as a percentage in both with- and without-project conditions.** The benefits of the project increase in this case, as the total voyage costs are spread over less cargo in both conditions.
- **Empties decrease as a percentage in both with- and without-project conditions.** The benefits of the project decrease in this case, as the total voyage costs are spread over more cargo.
- **Empties decrease as a percentage in the with-project condition.** The benefits of the project increase in this case. This case essentially assumes that the average vessel cubes out in the without-project condition, and that full containers in the with-project condition displace empties.
- **Empties increase as a percentage in the with-project condition.** The benefits of the project decrease in this case, representing a scenario in which carriers choose to use the additional capacity created by channel deepening to load more empties rather than fulls.

Each of these scenarios will be addressed in a sensitivity analysis. At this time, given the trade imbalance, increasing vessel size, and vessel rotations it is unlikely that the percentage of empties will be decreasing any time soon.

**Full logistics costs, including potential in-port vessel size diseconomies.** There are no known potential in-port vessel size diseconomies. It is not expected that future vessels calling Portland will get significantly larger than the largest vessels calling Portland today. Portland is already handling post-panamax container vessels. There are no

significant costs associated with vessel-size that should be included as part of the project costs<sup>6</sup>.

**Multi-Port for bulk commodities.** The Corps agrees that there are some potential benefits left uncouncted in this category.

**2. Panel Comment. Lack of Cargo Impacts.** The Corps assumed the same container cargo growth “with project” and “without project.” Panel members expect that cargo would increase faster with channel deepening, but a more detailed, multi-port analysis is needed to determine how much increased cargo would be induced by channel deepening.

**Corp Response.** Given that the Corps analysis addresses only ocean transportation cost changes, it is appropriate for the analysis to use constant volumes between the with and without-project conditions. See response to Comment 1 for response to multi-port analysis issues.

**3. Panel Comment. Vessel Capacity Limits.** There is a pervasive assumption in the Corps and Port studies that containerized cargo growth at Portland is limited only by vessel capacity.

**Corp Response.** It is not the Corps’ assumption that cargo growth at Portland is limited only by vessel capacity. The Corps’ agrees that there are many other factors that influence port-choice. These factors are certainly reflected in the expectation that Portland’s market share would not increase as a result of the project and would be projected to decline over time. The Portland market will almost always be limited to some degree by capacity, but, even if channel depth were not a factor, the vast amount of capacity in the Puget Sound and the vigorous competitive environment combine to dictate that there will always be cargo in the Portland hinterland that moves through the Puget Sound.

**4. Panel Comment. Container Fleet Assumptions.** The container shipping benefits analysis assumes that the composition of the containership fleet calling Portland will not change with channel deepening. In other words, the same vessels with the same capacities and design drafts will call Portland with or without deepening. Panel members felt that there could be some tendency to use larger vessels if a deeper channel were available, and that there could be some undocumented potential benefits. The Corps assumption that the container fleet changes are the same “with project” and “without project” appears reasonable and conservative within existing Corps analysis. Panel members believe this issue should be analyzed as part of a broader, multi-port context, and subjected to thorough sensitivity analysis.

**Corp Response.** The Corps agrees that there is some potential for larger ships, particularly in the near term, when the Corps analysis predicts that there will still be 30% of the Portland cargo moving on 42’ design draft vessels. The current service that uses

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<sup>6</sup> Bob Lipscomb, Manager, Liner Operations, Port of Portland.

those vessels did express that those could be replaced by larger vessels by 2007, and that sensitivity will be addressed in the final report.

**5. Panel Comment.** *Loaded vs. Empty Container Traffic.* The Corps assumed that loaded and empty container traffic would grow in parallel, retaining the existing proportions on Portland vessels. It is almost certain that the ratio of empties to loads would change, but the extent to which it would change and the impact on the benefits estimate is unclear. Should the carriers decide to use additional vessel cube (space) capacity to reposition a higher proportion of empty containers to Asia, the benefits (based on vessel sailing draft) may be smaller than if the increased vessel utilization based on sailing draft were attributable to loaded containers. At a minimum, this assumption, as well as the designation of “full vessels” based on sailing draft and or cargo space needs to be verified and the sensitivity of the benefits analysis to changes in the ratio of loaded and empty containers needs to be tested. This is another potential application of the multi-port analysis.

**Corps response.** See earlier response related to empties.

**6. Panel Comment.** *Carrier Market Entry and Exit.* The Corps assumed that the supply of container vessel capacity was limited only by channel depth, ignoring potential carrier entry and exit calling directly at Portland. While this may be reasonable under standard NED analysis guidelines, this approach creates an incomplete picture. Individual ocean carriers and carrier alliances have repeatedly entered and exited the direct Portland market over the last two decades. At the time of the review, one major carrier (Evergreen) had recently exited, leaving two alliances serving Portland directly and other carriers serving the same market indirectly over Tacoma or Seattle. Another carrier alliance was expected to begin direct Portland calls in August of 2002. The estimate of transportation cost savings rests on increased utilization of a fixed fleet of vessels calling Portland. Entry of another carrier with additional direct calls that spread the available cargo among more vessels could theoretically negate most of the benefits assuming that the cargo volume is fixed. The existing analysis does not capture this level of complexity.

**Corps Response.** With regard to the entry of an additional last-port service, history and the nature of the market suggest that carriers calling Portland require a high utilization rate in order for the call to remain viable.

While short term fluctuations in utilization are reasonable to expect, it is not reasonable to expect that the market would experience a long-term shift in such a way as would result in Portland becoming an over-tonnaged market. In order for such a thing to occur, revenue from export cargoes available in the Portland hinterland would have to change from being marginal to being a driving force in the transpacific traffic, which seems unlikely. Westbound cargo generally provides about one-half the revenue (on a per box basis) that eastbound cargo provides. The analysis does not attempt to predict carrier entry and exit because the market dictates that high utilization is essential in a carrier’s decision to serve Portland.



It should be noted, however, that the Corps analysis does assume that the initial additional capacity created by channel deepening will not be utilized immediately. In the DSEIS, the analysis assumes that there is a one-year transition period before carriers are able to fully adjust to the new draft constraint. As a sensitivity analysis, the Corps will consider the possibility that the adjustment period could be longer than a single year.

To further illustrate the point, consider that the Corps' analysis, based on historic trends, assumes that a portion of the Portland westbound transpacific cargo will be carried on vessels calling Portland as a mid-port, reducing the total tonnage available to benefit from the project. Currently, there are no transpacific mid-port carriers in Portland, and there are no current plans for any carrier to add such a service. While it is completely unknown when and if such a service would start, a reasonable analysis needs to acknowledge that possibility. In this case, it has been accepted not only as a possibility, but has been treated as a certainty.

**7. Panel Comment.** *Service Implications of Fewer Vessel Calls.* Since it was assumed that neither the cargo volume nor the vessel fleet would change with channel deepening, the transportation cost reductions would necessarily come from greater utilization of existing vessel capacity and fewer vessel calls. Vessel frequency, however, is a major factor in the decision of shippers to route cargo through a given port. Other things being equal, reduced vessel calls would tend to shift cargo to other ports. The realism of the post-deepening vessel scenarios must therefore be more closely examined (leading to a multi-port analysis).

**Corps Response.** To a certain degree, the Corps' analysis, by assuming a reduced market share for the Port of Portland, reflects the Panel's expectation that service factors (such as frequency of service) could lead to a shift in cargo to other ports. It should also be noted that a large portion of the cargo available in this hinterland is relatively low value agricultural and forestry products that is well served by regular weekly service. For many regional shippers, multiple weekly calls may not be as important as having regular time-certain service. For many regional shippers the cut-off day is an important consideration, with many shippers preferring a cut-off day toward the end of the week.

In the short-term, it is unlikely that the additional capacity created by channel improvement would result in existing carriers deciding to discontinue Portland service. In the long-term, assuming that Portland continues being served by three transpacific services, the time frame for the addition of a fourth service could be further in the future in the with-project condition than in the without-project condition. The fact that the cargo projections assume an increasing shift of Portland market share to the Puget Sound ports reflects the expectation that service issues will continue to be a factor in shipper decisions.

**8. Panel Comment.** *Forecasts and Cargo Capture.* The Corps's analysis apparently included simplifying assumptions regarding current and future container cargo capture

from Portland's hinterland (equivalent to market share). These factors were incorporated as the BST/DRI-WEFA Port of Portland cargo forecasts were applied to the benefits analysis. Some of these factors appear to be judgmental, although the analysis tends to be conservative. These critical judgments should be made explicit, documented, and subjected to explicit sensitivity and risk analyses.

**Corps Response.** The Corps agrees, and the analysis will show an explicit sensitivity analysis on market share.

**9. Panel Comment.** *Tons vs. TEU.* As is standard practice, the Corps conducted its analysis of container shipping benefits in short tons. The decisions made by shippers, consignees, and vessel operators are more often made and expressed in TEU (twenty-ft. equivalent units) or container count. The Corps thus applied a cargo weight standard to vessels that are managed by cubic capacity, which may give a distorted picture of vessel capacity utilization. This practice may also obscure the handling of empty containers, which have a tare weight but not net shipment weight. There may be merit in a parallel analysis expressed in TEU.

**Corps Response.** While the Corps analysis needs to have an accurate translation between TEU's and tons, the ultimate goal of the analysis relates to departure draft, and an analysis based on cubic capacity could end up distorting departure draft calculations. While eastbound cargoes tend to cube out a vessel prior to reaching design draft constraints (6.5 mtons per TEU on average), on the westbound voyage, DWT becomes the capacity constraint as the cargo is much heavier per unit (12+ stons/TEU in Portland, slightly less overall, for westbound cargo).

**10. Panel Comment.** *Light-Loading Vessel Benefits.* Current practice at Portland is for container vessels to depart with drafts of 38-39 ft. Vessels departing at shallower departure drafts (e.g. 36-37 ft.) are referred to as "light-loading" in the absence of cube capacity constraints, as they are not carrying as much tonnage as the present 40-ft. channel would allow. The methodology for vessel cost savings includes benefits from "with project" departure drafts of 38 ft. or less, which is not reasonable. Such departure drafts are available at present, and do not require deepening. Moreover, light-loading vessels using less than the available draft with or without the project are apparently limited by some factor other than channel depth. Benefits would only accrue to vessels now limited by channel depth, those now leaving at departure drafts of 38-39 ft. that could load to 40-42 ft. with deepening.

**Corps Response.** The Panel presents a difficult question, in that there appears to be an acceptance of the idea that a shift of departure drafts would occur as a result of channel deepening, but that some of the resulting cost reductions should not be included as a benefit. It is the Corps' position that this cost reduction is directly attributable to the project and should be counted as a project benefit.

The Corps will review departure draft data, however, as it does appear that the current analysis overstates the amount of cargo moving at departure drafts of 38' or less in the

with-project condition. A sensitivity analysis will be applied to that tonnage displaying the potential range in benefits assuming that not all of that tonnage would necessarily benefit from a channel improvement.

**11. Panel Comment.** *Realization of Rate Reductions by Non-Portland Shippers.* As noted elsewhere, the standard interpretation of NED benefits implicitly assumes that transportation cost reductions will result in benefits to US carriers or shippers. Given that the carriers in question are all foreign-owned, the validity of this implicit assumption rests on the translation of carrier cost savings into rate reductions for US customers. This is a particular concern when the NED analysis effectively assumes that carrier operating savings from greater Portland departure depths will result in rate reductions to shippers using *other* ports, specifically Tacoma (the last US port before Portland on outbound trips). More complete analysis (i.e. the “multi-port” analysis) would be required to support these benefits.

**Corps Response.** Corps policy dictates that costs, rather than rates, be applied in the analysis. The decision to include on-board tonnage as benefiting is also consistent with policy, in that the total vessel operating costs are spread across all tonnage on board, with the exception that Canadian cargo has been excluded as benefiting tonnage.

**12. Panel Comment.** *Impact of Rate Reductions at Other Ports on Portland Cargo Capture.* If improved vessel economics do indeed benefit cargo and shippers at other ports, specifically Tacoma, what is the potential impact on cargo capture from Portland’s hinterland? The Corps’s analysis assumes no change in cargo flows due to the project, yet improved economics at a competing port such as Tacoma could tend to draw cargo away from Portland.

**Corps Response.** The cargo volumes used in the Corps analysis assume that the Puget Sound ports capture additional share of the Columbia River hinterland in the future. The comment seems to hinge, however, on the idea that carriers that are calling the Puget Sound and Portland are currently having cargo shipped out of the Portland hinterland to the Puget Sound which is then carried on the vessel from the Puget Sound to Portland. This is not occurring and is highly unlikely to occur at any point in the future.

The comment also seems to indicate the possibility of rate competition from carriers that call the Puget Sound but do not call the Columbia River. While this is certainly a possibility, Corps policy dictates that the benefits of the project are based on costs, rather than rate changes.

**13. Panel Comment.** *Significance of Delay.* Portland is currently the last port of call for vessels outbound to Japan on both alliance services. Given the transit times to Japan of more than a week, a delay of a few hours may have no practical significance. The report also notes that late vessel arrivals could disrupt schedules of connecting intermodal (rail/truck) operations, but such operations do not take place in Japan. While it is true that liner services attempt to adhere closely to scheduled arrivals, it is also true that a delay of a few hours can almost certainly be made up on the trans-pacific crossing. In these

circumstances, the impact of a small delay may be no more than the added cost of fuel for a slightly accelerated vessel speed if the schedule is to be rigidly maintained on an hour basis.

**Corps Response.** See earlier response to delay comments.

**14. Panel Comment – Bulk Benefits.** The potential Columbia River deepening benefits from the existing bulk fleet due to increased utilization and/or reduced delay were reviewed and appear reasonable. The potential Columbia River deepening benefits from the fleet shift to larger bulk vessels under with project conditions (deepening) were reviewed and also appear reasonable. There is a minor concern that the cost of bulk vessel trips should be reviewed as it relates to assumptions about the empty return of these vessels instead of securing other loaded movements in conjunction with repositioning of the vessel for subsequent bulk shipments.

The bulk vessel benefits from increased utilization, reduced delay and larger vessels all appear to be reasonable in conjunction with conservative cargo projections which did not allow for the potential for increased cargo under with project conditions.

**Corps Response:** The Port of Portland provided data indicating that approximately 35 percent of the handymax vessels and 2 percent of the panamax vessels had a U.S. backhaul. The benefit analysis will be adjusted accordingly. Analysis of the Port data also revealed that the majority of bulk vessels are typically being positioned in from Japan or S. Korea, and round-trip voyage distances for all other destinations will be adjusted accordingly.

**15. Panel Comment – Rate Impacts.** The realities of Portland’s situation and elements of the analysis itself led panel members to question the validity of NED assumptions as applied to this project. The “with project” scenario may be more conducive to rate rigidity for container vessels, and less conducive to rate reductions for the container trade.

**Corps Response:** As noted by the Panel, policy dictates that costs, rather than rates, are the basis for the analysis. The Panel’s comments have been forwarded to HQUSACE.